Complete Summary

GUIDELINE TITLE

Care of the patient with ocular surface disorders.

BIBLIOGRAPHIC SOURCE(S)

American Optometric Association. Care of the patient with ocular surface disorders. St. Louis (MO): American Optometric Association; 2002 Nov. 59 p. [117 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Ocular surface disorders, focusing on the two most common clinical forms, dry eye and blepharitis

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Optometry

INTENDED USERS

Health Plans
Optometrists

GUIDELINE OBJECTIVE(S)

- To identify patients at risk of developing ocular surface disorders
- To accurately diagnose patients with ocular surface disorders
- To differentially diagnose age, drug, environmental, and systemic disease-related causes of ocular surface disorders
- To improve the quality of care rendered to patients with ocular surface disorders
- To reduce the prevalence and degree of disability from ocular surface disorders
- To inform and educate patients and other health care providers about the visual complications, risk factors, and treatment options associated with ocular surface disorders

TARGET POPULATION

Adults suspected of having ocular surface disease

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. History and physical examination
2. Ocular examination for dry eye
    - Biomicroscopic examination
    - Tear quantity tests (e.g., Schirmer tear test, fluorescein staining, rose bengal staining)
    - Tear film stability tests (e.g., tear film breakup time, tear-thinning time, lactoferrin concentration tests, lysozyme radial diffusion assay)
3. Ocular examination for blepharitis
    - External examination
    - Biomicroscopic examination
    - Examination of tear film

Treatment

1. Ocular hygiene
2. Topical treatment, including tear supplements, ointments, and polymeric inserts
3. Punctal occlusion
4. Alternative methods, including hydrophilic bandage lenses and collagen corneal shields, moisture chamber goggles, tarsorrhaphy, estrogen replacement, salivary gland transplant, and limbal grafts
5. Identification and elimination of environmental factors
6. Anti-infective medications or antibiotic/steroid combination drugs (e.g., erythromycin, bacitracin, polymyxin B-bacitracin, gentamicin, tobramycin, systemic tetracycline or doxycycline), pilocarpine gel for demodicosis
7. Patient counseling and education
8. Follow-up

MAJOR OUTCOMES CONSIDERED

- Utility and accuracy of diagnostic tests for dry eye and blepharitis
- Patient comfort and symptom control
- Ocular damage

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches using the National Library of Medicine's Medline database and the VisionNet database.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analysis were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The Reference Guide for Clinicians was reviewed by the American Optometric Association (AOA) Clinical Guidelines Coordinating Committee and approved by the American Optometric Association Board of Trustees March 23, 1995 (1st edition) and on November 8, 2002 (2nd edition).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

A. Diagnosis of Ocular Surface Disorders

Patients with compromised ocular surfaces have greater potential for discomfort or further ocular damage. Early recognition of the signs of infection and prompt diagnosis minimize the potential for severe or chronic complications. Evaluation of a patient exhibiting dry eye symptoms or blepharitis includes many of the elements of a comprehensive eye and vision examination and a more in-depth evaluation of the ocular surface and adnexa. (Refer to the Optometric Clinical Practice Guideline on Comprehensive Adult Eye and Vision Examination.) The evaluation for ocular surface disorders includes a carefully detailed patient history, an assessment of associated risk factors, and an examination of the anterior ocular structures and their functions.

1. Patient History

Demographic data about the patient should be collected prior to taking the patient history. Included in the patient history are the chief complaint, ocular history, general health history (which may include a social history and an extended review of systems), and family ocular and medical history. In addition, environmental factors relating to climate, season, vocational setting, and avocational pursuits should be reviewed.

2. Ocular Examination for Dry Eye

Observations, using external ocular examination techniques, both without magnification and with the biomicroscope, show characteristic early changes of the external eye. Evaluation for suspected ocular surface disorders may include, but is not limited to, the following:

- External view of the eye, noting lid structure, position, symmetry, and blink dynamics
- Biomicroscopic examination of the lid margins, meibomian gland orifices and their contents

- Biomicroscopic examination of the tear film, noting mucus, debris, interference patterns in the lipid layer, and tear meniscus height
- Biomicroscopic examination of the cornea and conjunctiva, both with and without sodium fluorescein and rose bengal or lissamine green staining.

Tear quantity tests are useful in confirming the diagnosis of aqueous deficient dry eye. The most frequently utilized procedures are:

- Schirmer tear test
- Fluorescein staining
- Evaluation of the tear prism
- Debris in the tear film
- Rose bengal staining

Other tests that may be used to evaluate tear quantity include:

- Schirmer II (irritation)
- Lissamine green staining
- Tear volume measurements
- Lacrimal equilibration time
- Cotton thread test
- Phenol red thread test
- Fluorophotometry; fluorescein dilution
- Temporary punctal occlusion

Several procedures are commonly used to evaluate tear film stability.

- Tear film breakup time (BUT)
- Tear-thinning time
- Lactoferrin concentration tests: LactoPlate® and LactoCard®
- Lysozyme radial diffusion assay: Quantiplate

Other tests that may be used to evaluate the quality of the preocular tear film (POTF) are:

- Tear osmolarity test
- Conjunctival scraping and biopsy
- Mucin assay test (tear ferning)
- Specular reflection of the tear surface
- Impression cytology
- Tear protein analysis
- Lipid layer interference patterns
- Enzyme-linked immunosorbent assay (ELISA) tear protein profile

3. Ocular Examination for Blepharitis

A thorough external examination of the lids and other parts of the adnexa, including comparison of the eyes, helps determine the severity of the inflammation. Differentiating among the various

presentations of blepharitis requires the use of the biomicroscope to contrast the appearance of the anterior and the posterior lid margins. Evaluation of the patient with blepharitis may include, but is not limited to, the following:

- External examination of the eye, including lid structure, skin texture, and eyelash appearance; and evaluation for clinical signs of acne rosacea (i.e., telangiectasia, pustules, rhinophyma)
- Biomicroscopic examination of the lid margins, the base of the lashes, and the meibomian gland orifices and their contents
- Examination of the tear film for lipid layer abnormalities

Each type of blepharitis has specific characteristics that help in making the diagnosis. These are described in detail in the original guideline document.

B. Management of Ocular Surface Disorders

1. Management of Dry Eye

a. Basis for Treatment

Stepwise determination of the minimum intervention required to achieve results will help ensure a balance of patient compliance, long-term success, and cost-effectiveness. The management of dry eye is designed to reduce symptoms and inflammation and to re-establish a normal ocular surface. Efforts should be aimed at maintaining or restoring the preocular tear film and ridding the lids of potential sources of tear film destabilization. Whenever possible, environmental factors contributing to dry eye should be identified and either modified or eliminated. When associated medical conditions are identified, consultation with or referral to the patient's primary care physician or other health care provider may be indicated.

b. Available Treatment Options

Attempts to relieve dry eye symptoms and re-establish a normal ocular surface have produced a myriad of possible remedies. Traditional approaches include both tear supplementation and tear conservation measures. Several alternatives have been used with varying degrees of clinical success:

- Ocular hygiene
- Topical treatment with tear supplements, ointments, and soluble polymeric inserts
- Punctal occlusion

Alternative methods for relieving symptoms specific to ocular surface disorders include:

- Hydrophilic bandage lenses and collagen corneal shields
- Moisture chamber goggles
- Tarsorrhaphy
- Estrogen replacement
- Salivary gland transplant
- Limbal grafts

2. Management of Blepharitis
    . Basis for Treatment

Acute sequelae to blepharitis are usually the direct result of infection of the lipid-producing glands that open to the lid margin. Their clinical presentation includes internal and external hordeola. The treatment is relatively straightforward. Though essential, lid hygiene alone may not resolve the problem. Depending upon the clinical findings, an appropriate anti-infective drug can be administered topically, systemically, or in combination. On the other hand, chronic blepharitis is a disease for which there is no complete cure. Aggressive therapy should initially include a minimum of 6 weeks of lid hygiene and appropriate anti-infective medications to gain control of the condition, followed by continuing treatment to maintain control of chronic blepharitis.

a. Available Treatment Options

Because each category of blepharitis is actually a separate condition, each is addressed individually in the original guideline document. Treatment approaches for the following forms of blepharitis are discussed in greater detail in the guideline document:

- Staphylococcal blepharitis
- Seborrheic blepharitis
- Seborrheic/staphylococcal blepharitis
- Meibomian seborrheic blepharitis
- Seborrheic blepharitis with secondary meibomianitis
- Meibomian keratoconjunctivitis
- Angular blepharitis
- Demodicosis

3. Patient Education

When there is no previously known local or systemic cause for the ocular findings, the patient should be educated about other conditions possibly associated with the ocular surface disorder and assisted in obtaining further diagnostic evaluations.

When topical treatment for dry eye is prescribed, the patient should be given the rationale for treatment, along with the specific dosages, frequency, and duration. The patient should be made aware of the expected results and given instructions to follow in case of adverse effects. A follow-up examination of the patient should be scheduled to assess treatment effectiveness.

The treatment of blepharitis requires close, ongoing cooperation between the patient and the practitioner. Thorough discussion of the causes, the rationale for treatment, and the expected results is essential in the management of this condition. Most patients with blepharitis have a significant improvement in their symptoms when the appropriate hygiene, topical, and/or systemic treatments are instituted. Because there is no cure for the chronic forms of blepharitis, patients must actively participate in steps to control the inflammatory process. Thorough explanation of both the chronicity of the disease and the rationale for the therapy helps encourage patient compliance. Specific instructions and realistic expectations for the abatement of symptoms should be reinforced by scheduled follow-up.

4. Prognosis and Follow-Up

Follow-up visits for treatment of blepharitis may be as frequent as every few days at the outset, tapering off to once or twice a year after stabilization of the condition. The frequency and composition of evaluation and management visits for dry eye are summarized in the table below.

Table 1. Frequency and Composition of Evaluation and Management Visits for Dry Eye

Type of Disorder

Mild Keratoconjunctivitis sicca (KCS)
Frequency of Examination: Annual or as necessary (p.r.n.)
History: Yes
Slit Lamp Biomicroscopy: Yes
Supplemental Testing Plan: Fluorescein, rose bengal, breakup time (BUT) up to p.r.n.
Management: Preserved or unpreserved tear supplements daily (q.d.)

Moderate KCS
Frequency of Examination: Every 6-12 months or p.r.n.
History: Yes
Slit Lamp Biomicroscopy: Yes
Supplemental Testing Plan: Fluorescein, rose bengal, BUT, Schirmer test
Management: Unpreserved tear supplements 4-5 times a day up to p.r.n.

Severe KCS
Frequency of Examination: Every 3-6 months or p.r.n.
History: Yes
Slit Lamp Biomicroscopy: Yes
Supplemental Testing Plan: Fluorescein, rose bengal, BUT, Schirmer test
Management: Unpreserved tear supplements p.r.n.; ointment at bedtime (h.s.), punctal occlusion

Severe KCS associated with systemic disease
Frequency of Examination: Every 1-3 months or p.r.n.
History: Yes
Slit Lamp Biomicroscopy: Yes
Supplemental Testing Plan: Fluorescein, rose bengal, BUT, Schirmer test
Management: Unpreserved tear supplements p.r.n.; ointment at bedtime (h.s.), punctal occlusion; refer to primary physician

Table 2. Frequency and Composition of Evaluation and Management Visits for Blepharitis

Type of Disorder

Seborrheic blepharitis
Frequency of Examination: Weekly until stable, then p.r.n.
History: Yes
Slit Lamp Biomicroscopy: Yes
Management Plan: Lid hygiene three times per day (t.i.d.) until improved, then daily

Staphylococcal blepharitis
Frequency of Examination: Twice a week until cleared, then p.r.n.
History: Yes
Slit Lamp Biomicroscopy: Yes
Management Plan: Antibiotic or antibiotic/steroid ointment (ung.) h.s. to t.i.d.; tear supplements p.r.n.; steroid drops or ung. if infiltrates; lid hygiene t.i.d. until improved, then q.d.

Seborrheic/staphylococcal blepharitis
Frequency of Examination: Twice a week until controlled; then every 6 months or p.r.n.
History: Yes
Slit Lamp Biomicroscopy: Yes
Management Plan: Antibiotic or antibiotic/steroid ung. h.s. to t.i.d., then lid hygiene q.d. to t.i.d. for control

Meibomian seborrheic blepharitis
Frequency of Examination: Twice a week until stable, then as part of preventive care
History: Yes
Slit Lamp Biomicroscopy: Yes
Management Plan: Lid hygiene up to t.i.d.; scalp shampoo q.d.; meibomian express q.d.; antibiotic or antibiotic/steroid ung. h.s. to t.i.d.

Seborrheic blepharitis with secondary meibomianitis
Frequency of Examination: Twice a week until stable (up to 8 weeks), then as part of preventive care
History: Yes
Slit Lamp Biomicroscopy: Yes
Management Plan: Lid hygiene up to t.i.d.; antibiotic or antibiotic/steroid ung. h.s. to t.i.d.; oral tetracycline or doxycycline (taper)

Meibomian keratoconjunctivitis
Frequency of Examination: Twice a week until stable (up to 2 weeks), then as part of preventive care
History: Yes
Slit Lamp Biomicroscopy: Yes
Management Plan: Lid hygiene; antibiotic or antibiotic/steroid ung. h.s. to t.i.d.; oral tetracycline or doxycycline (taper)

CLINICAL ALGORITHM(S)

An algorithm is provided in the original guideline document for Optometric Management of the Patient with Ocular Surface Disorders.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The guideline serves as a practical aid in the management of patients who present for help with ocular surface diseases. Educating patients about dry eye and blepharitis is a key element in successful control of these ocular problems. With careful diagnosis, treatment, and proper patient education, the long-term comfort of these patients can be maintained.

POTENTIAL HARMS

Tear supplements may cause adverse effects, including reduction of the desired effect, allergic response, and toxic reaction.

Ophthalmic preservatives used in artificial tear solutions and their potential adverse effects are:

- Thimerosal--hypersensitive reaction in an estimated 10-25 percent of users
- Benzalkonium chloride--Preocular tear film instability, lowered breakup time (BUT), and disrupted corneal epithelial cell functions when dosed at commercial concentrations more frequently than three times daily
- Chlorobutanol--evaporation, corneal epithelial cell changes
- Ethylenediaminetetraacetic acid (EDTA)--contact allergy
- Chlorhexidine digluconate--storage in the corneal and conjunctival epithelium
- Ointments placed in the eye may cause blurred vision

Subgroups Most Likely to be Harmed:

- Patients allergic to wool may react adversely to lanolin.

- Tetracycline and its derivatives should not be given to children or pregnant or nursing women.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Clinicians should not rely on this Clinical Guideline alone for patient care and management. Refer to the references and other sources listed in the original guideline document for a more detailed analysis and discussion of research and patient care information.
- This Guideline describes the optometric care provided to a patient with ocular surface disorders. The components of patient care described are not intended to be comprehensive because professional judgment and the individual patient's symptoms and findings may have a significant impact on the nature, extent, and course of the services provided. Some components of care may be delegated.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Optometric Association. Care of the patient with ocular surface disorders. St. Louis (MO): American Optometric Association; 2002 Nov. 59 p. [117 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1995 (revised 2002)

GUIDELINE DEVELOPER(S)

American Optometric Association - Professional Association

SOURCE(S) OF FUNDING

Funding for the Guidelines has been provided by the Vision Service Plan (VSP) family of companies that are all committed to the success of the private eyecare practice, including VSP, Altaireyewear, Eyefinity and the VSP Optical Laboratory.

GUIDELINE COMMITTEE

American Optometric Association Consensus Panel on Care of the Patient with Ocular Surface Disorders

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

First Edition Committee Members: Clifford A. Scott, O.D., M.P.H.; Louis J. Catania, O.D.; K. Michael Larkin, O.D.; Ron Melton, O.D.; Leo P. Semes, O.D.; Joseph P. Shovlin, O.D.

Edited and Revised by: Leo P. Semes, O.D. (Principal Author); David C. Bright, O.D.; C. Denise Pensyl, O.D., M.S.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

It updates a previous version: American Optometric Association. Care of the patient with ocular surface disease. 2nd ed. St. Louis (MO): American Optometric Association; 1995. 58 p. (Optometric clinical practice guideline; no. 10).

According to the guideline developer, this guideline has been reviewed on a biannual basis and is considered to be current. This review process involves updated literature searches of electronic databases and expert panel review of new evidence that has emerged since the original publication date.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American Optometric Association Web site.

Print copies: Available from the American Optometric Association, 243 N. Lindbergh Blvd., St. Louis, MO 63141-7881.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on December 2, 1999. The information was verified by the guideline developer as of January 31, 2000. The summary was updated on April 10, 2003. The information was verified by the guideline developer on April 28, 2003.

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